

SEQUENCE LISTING

<110> Han, Hui-Quan  
Kwak, Keith

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Ser Arg Leu Met Leu Trp Asp Ala Lys Leu Tyr Lys Gly Ala Arg Lys  
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Ile Leu His Glu Leu Ile Phe Ser Ser Phe Phe Met Glu Met Glu Tyr  
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Lys Lys Leu Phe Ala Met Glu Phe Val Lys Tyr Tyr Lys Gln Leu Gln  
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Lys Glu Tyr Ile Ser Asp Asp His Asp Arg Ser Ile Ser Ile Thr Ala  
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Leu Ser Val Gln Met Phe Thr Val Pro Thr Leu Ala Arg His Leu Ile  
420 425 430

Glu Glu Gln Asn Val Ile Ser Val Ile Thr Glu Thr Leu Leu Glu Val  
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Leu Pro Glu Tyr Leu Asp Arg Asn Asn Lys Phe Asn Phe Gln Gly Tyr  
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Ser Gln Asp Lys Leu Gly Arg Val Tyr Ala Val Ile Cys Asp Leu Lys  
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Tyr Ile Leu Ile Ser Lys Pro Thr Ile Trp Thr Glu Arg Leu Arg Met  
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Gln Phe Leu Glu Gly Phe Arg Ser Phe Leu Lys Ile Leu Thr Cys Met  
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Gln Gly Met Glu Glu Ile Arg Arg Gln Val Gly Gln His Ile Glu Val  
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Asp Pro Asp Trp Glu Ala Ala Ile Ala Ile Gln Met Gln Leu Lys Asn  
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Ile Leu Leu Met Phe Gln Glu Trp Cys Ala Cys Asp Glu Glu Leu Leu  
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Leu Val Ala Tyr Lys Glu Cys His Lys Ala Val Met Arg Cys Ser Thr  
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Leu Pro Leu Ser Arg Thr Leu Ala Gly Leu His Val Arg Leu Ser Arg  
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Leu Gly Ala Val Ser Arg Leu His Glu Phe Val Ser Phe Glu Asp Phe  
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Gln Val Glu Val Leu Val Glu Tyr Pro Leu Arg Cys Leu Val Leu Val  
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Ala Gln Val Val Ala Glu Met Trp Arg Arg Asn Gly Leu Ser Leu Ile  
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	770					775					780				
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Glu	Asn	Val	Ile	Asn	Lys	Val	Ala	Thr	Phe	Lys	Lys	Pro	Gly	Val	Ser
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Cys Ala Asp Pro Ala Leu Leu Asn Cys Leu Lys Gln Lys Asn Thr Val  
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Ala Ser Glu Leu Glu Pro Glu Val Gln Ala Ile Asp Arg Ser Leu Leu  
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Glu Cys Ser Ala Glu Glu Ile Ala Gly Lys Trp Leu Gln Ala Thr Asp  
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cag cat gtt ttg ttg gga cca atg gaa tgg tac ctt tgt ggt gaa gat 537  
Gln His Val Leu Leu Gly Pro Met Glu Trp Tyr Leu Cys Gly Glu Asp  
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Pro Ala Phe Gly Phe Pro Lys Leu Glu Gln Ala Asn Lys Pro Ser His  
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Asp	Cys	Ala	Val	Asp	Pro	Thr	Cys	Val	Leu	Cys	Met	Glu	Cys	Phe	Leu	
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Tyr	Gly	Asp	Phe	Gln	Tyr	Cys	Glu	Gln	Ala	Lys	Ser	Val	Ile	Val	Arg	
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Asn	Thr	Ser	Arg	Gln	Thr	Lys	Pro	Leu	Lys	Val	Gln	Val	Met	His	Ser	
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Ser	Ile	Val	Ala	His	Gln	Asn	Phe	Gly	Leu	Lys	Leu	Leu	Ser	Trp	Leu	
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Lys	Leu	Phe	Ala	Val	Arg	Phe	Ala	Lys	Asn	Tyr	Gln	Gln	Leu	Gln	Arg	
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Ser	Val	Gln	Phe	Phe	Thr	Ala	Pro	Thr	Leu	Ala	Arg	Met	Leu	Ile	Thr	
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Glu	Glu	Asn	Leu	Met	Ser	Ile	Ile	Ile	Lys	Thr	Phe	Met	Asp	His	Leu	
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Lys	Tyr	Val	Leu	Ile	Ser	Lys	Pro	Thr	Glu	Trp	Ser	Asp	Glu	Leu	Arg	
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Asp	Leu	Thr 35	Arg	Glu	Val	Tyr	Gln 40	His	Leu	Ala	His	Tyr 45	Val	Pro	Lys
Ile	Tyr 50	Cys	Arg	Gly	Pro	Asn 55	Pro	Phe	Pro	Gln	Lys 60	Glu	Asp	Met	Leu
Ala 65	Gln	His	Val	Leu	Leu 70	Gly	Pro	Met	Glu	Trp 75	Tyr	Leu	Cys	Gly	Glu 80
Asp	Pro	Ala	Phe	Gly 85	Phe	Pro	Lys	Leu	Glu 90	Gln	Ala	Asn	Lys	Pro 95	Ser
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Val	Leu	Ile	Glu	Ala	Tyr	Lys	Lys	Cys	Leu	Ala	Val	Leu	Met	Gln	Cys
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Ser	Glu	Leu	Ser	Pro	Pro	Met	Leu	Ile	Glu	His	Pro	Leu	Arg	Cys	Leu
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cag Gln 1255	ata Ile	aag Lys	gtg Val	gtc Val	cag Gln	atg Met 1260	ctg Leu	agg Arg	aga Arg	aag Lys	cac His 1265	aat Asn	gct Ala	gct Ala	gac Asp	4569
acg Thr 1270	tct Ser	tct Ser	tca Ser	gag Glu	gac Asp 1275	aca Thr	gaa Glu	gcc Ala	atg Met	aat Asn 1280	ata Ile	ata Ile	ccg Pro	atc Ile	ccc Pro	4617
gaa Glu 1285	ggc Gly	ttc Phe	agg Arg	cct Pro	gat Asp 1290	ttt Phe	tat Tyr	cct Pro	agg Arg 1295	aac Asn	cca Pro	tat Tyr	tct Ser	gat Asp 1300	agc Ser	4665
ata Ile	aaa Lys	gaa Glu	atg Met 1305	tta Leu	acg Thr	aca Thr	ttt Phe	gga Gly 1310	acg Thr	gct Ala	gct Ala	tac Tyr	aag Lys 1315	gtg Val	gga Gly	4713



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Cys	Leu	Arg	Ser	Leu	Thr	Arg	Phe	Ala	Ala	Ala	His	Trp	Thr	Val	Ala	
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gtg	cct	agt	gac	agc	tat	gaa	gac	ctc	ccg	tgc	ata	cta	gac	atc	gac	5001
Val	Pro	Ser	Asp	Ser	Tyr	Glu	Asp	Leu	Pro	Cys	Ile	Leu	Asp	Ile	Asp	
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Met	Phe	His	Leu	Leu	Val	Gly	Leu	Val	Leu	Ala	Phe	Pro	Ala	Leu	Gln	
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Cys	Gln	Asp	Phe	Ser	Gly	Ser	Ser	Leu	Ala	Thr	Gly	Asp	Leu	His	Ile	
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Phe	His	Leu	Val	Thr	Met	Ala	His	Ile	Val	Gln	Ile	Leu	Leu	Thr	Ser	
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Cys	Thr	Glu	Glu	Asn	Gly	Met	Asp	Gln	Glu	Asn	Pro	Thr	Gly	Glu	Glu	
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gaa	ctg	gcc	att	ctc	tct	ttg	cac	aaa	aca	ctt	cac	cag	tat	act	gga	5241
Glu	Leu	Ala	Ile	Leu	Ser	Leu	His	Lys	Thr	Leu	His	Gln	Tyr	Thr	Gly	
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Ser	Ala	Leu	Lys	Glu	Ala	Pro	Ser	Gly	Trp	His	Leu	Trp	Arg	Ser	Val	
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Tyr	Leu	Asn	Gly	Val	Pro	Ala	Pro	Pro	Asp	Leu	Gln	Val	Ser	Gly	Thr	
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agt tgg tgc cag aac agt gaa gtt aaa cgg tat cta aat ggc gag aga 5529  
 Ser Trp Cys Gln Asn Ser Glu Val Lys Arg Tyr Leu Asn Gly Glu Arg  
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 Gly Ala Ile Ser Tyr Pro Arg Gly Ala Asn Lys Leu Ile Asp Leu Pro  
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 Glu Asp Tyr Ser Ser Leu Ile Asn Gln Ala Ser Asn Phe Ser Cys Pro  
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 Lys Ser Gly Gly Asp Lys Ser Arg Ala Pro Thr Leu Cys Leu Val Cys  
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 Tyr Gly Glu Thr Asp Gln Gly Leu Arg Arg Gly Asn Pro Leu His Leu  
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 Cys Gln Glu Arg Phe Arg Lys Ile Gln Lys Leu Trp Gln Gln His Ser  
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 Ile Thr Glu Glu Ile Gly His Ala Gln Glu Ala Asn Gln Thr Leu Val  
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Ile	Tyr	Cys	Arg	Gly	Pro	Asn	Pro	Phe	Pro	Gln	Lys	Glu	Asp	Thr	Leu
	50					55					60				
Ala	Gln	His	Ile	Leu	Leu	Gly	Pro	Met	Glu	Trp	Tyr	Ile	Cys	Ala	Glu
65					70					75					80
Asp	Pro	Ala	Leu	Gly	Phe	Pro	Lys	Leu	Glu	Gln	Ala	Asn	Lys	Pro	Ser
				85					90					95	
His	Leu	Cys	Gly	Arg	Val	Phe	Lys	Val	Gly	Glu	Pro	Thr	Tyr	Ser	Cys
			100					105					110		
Arg	Asp	Cys	Ala	Val	Asp	Pro	Thr	Cys	Val	Leu	Cys	Met	Glu	Cys	Phe
		115					120					125			
Leu	Gly	Ser	Ile	His	Arg	Asp	His	Arg	Tyr	Arg	Met	Thr	Thr	Ser	Gly
	130					135					140				
Gly	Gly	Gly	Phe	Cys	Asp	Cys	Gly	Asp	Thr	Glu	Ala	Trp	Lys	Glu	Gly
145					150					155					160
Pro	Tyr	Cys	Gln	Lys	His	Lys	Leu	Ser	Ser	Ser	Glu	Val	Val	Glu	Glu
				165					170					175	
Glu	Asp	Pro	Leu	Val	His	Leu	Ser	Glu	Asp	Val	Ile	Ala	Arg	Thr	Tyr
			180					185					190		
Asn	Ile	Phe	Ala	Ile	Met	Phe	Arg	Tyr	Ala	Val	Asp	Ile	Leu	Thr	Trp
		195					200					205			
Glu	Lys	Glu	Ser	Glu	Leu	Pro	Glu	Asp	Leu	Glu	Val	Ala	Glu	Lys	Ser
	210					215					220				
Asp	Thr	Tyr	Tyr	Cys	Met	Leu	Phe	Asn	Asp	Glu	Val	His	Thr	Tyr	Glu
225					230					235					240
Gln	Val	Ile	Tyr	Thr	Leu	Gln	Lys	Ala	Val	Asn	Cys	Thr	Gln	Lys	Glu
				245					250					255	
Ala	Ile	Gly	Phe	Ala	Thr	Thr	Val	Asp	Arg	Asp	Gly	Arg	Arg	Pro	Val
			260					265					270		
Arg	Tyr	Gly	Asp	Phe	Gln	Tyr	Cys	Asp	Gln	Ala	Lys	Thr	Val	Ile	Val
		275					280					285			
Arg	Asn	Thr	Ser	Arg	Gln	Thr	Lys	Pro	Leu	Lys	Val	Gln	Val	Met	His
	290					295					300				
Ser	Ser	Val	Ala	Ala	His	Gln	Asn	Phe	Gly	Leu	Lys	Ala	Leu	Ser	Trp
305					310				315						320
Leu	Gly	Ser	Val	Ile	Gly	Tyr	Ser	Asp	Gly	Leu	Arg	Arg	Ile	Leu	Cys
				325					330					335	
Gln	Val	Gly	Leu	Gln	Glu	Gly	Pro	Asp	Gly	Glu	Asn	Ser	Ser	Leu	Val
			340					345					350		
Asp	Arg	Leu	Met	Leu	Asn	Asp	Ser	Lys	Leu	Trp	Lys	Gly	Ala	Arg	Ser
		355					360					365			

Val	Tyr	His	Gln	Leu	Phe	Met	Ser	Ser	Leu	Leu	Met	Asp	Leu	Lys	Tyr
370						375					380				
Lys	Lys	Leu	Phe	Ala	Leu	Arg	Phe	Ala	Lys	Asn	Tyr	Arg	Gln	Leu	Gln
385					390					395					400
Arg	Asp	Phe	Met	Glu	Asp	Asp	His	Glu	Arg	Ala	Val	Ser	Val	Thr	Ala
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Leu	Ser	Val	Gln	Phe	Phe	Thr	Ala	Pro	Thr	Leu	Ala	Arg	Met	Leu	Leu
			420					425					430		
Thr	Glu	Glu	Asn	Leu	Met	Thr	Val	Ile	Ile	Lys	Ala	Phe	Met	Asp	His
		435					440					445			
Leu	Lys	His	Arg	Asp	Ala	Gln	Gly	Arg	Phe	Gln	Phe	Glu	Arg	Tyr	Thr
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Ala	Leu	Gln	Ala	Phe	Lys	Phe	Arg	Arg	Val	Gln	Ser	Leu	Ile	Leu	Asp
465					470					475					480
Leu	Lys	Tyr	Val	Leu	Ile	Ser	Lys	Pro	Thr	Glu	Trp	Ser	Asp	Glu	Leu
				485					490					495	
Arg	Gln	Lys	Phe	Leu	Gln	Gly	Phe	Asp	Ala	Phe	Leu	Glu	Leu	Leu	Lys
			500					505					510		
Cys	Met	Gln	Gly	Met	Asp	Pro	Ile	Thr	Arg	Gln	Val	Gly	Gln	His	Ile
		515					520					525			
Glu	Met	Glu	Pro	Glu	Trp	Glu	Ala	Ala	Phe	Thr	Leu	Gln	Met	Lys	Leu
	530					535					540				
Thr	His	Val	Ile	Ser	Met	Val	Gln	Asp	Trp	Cys	Ala	Leu	Asp	Glu	Lys
545					550					555					560
Val	Leu	Ile	Glu	Ala	Tyr	Lys	Lys	Cys	Leu	Ala	Val	Leu	Thr	Gln	Cys
				565					570					575	
His	Gly	Gly	Phe	Thr	Asp	Gly	Glu	Gln	Pro	Ile	Thr	Leu	Ser	Ile	Cys
			580					585					590		
Gly	His	Ser	Val	Glu	Thr	Ile	Arg	Tyr	Cys	Val	Ser	Gln	Glu	Lys	Val
		595					600					605			
Ser	Ile	His	Leu	Pro	Ile	Ser	Arg	Leu	Leu	Ala	Gly	Leu	His	Val	Leu
	610					615					620				
Leu	Ser	Lys	Ser	Glu	Val	Ala	Tyr	Lys	Phe	Pro	Glu	Leu	Leu	Pro	Leu
625					630				635						640
Ser	Glu	Leu	Ser	Pro	Pro	Met	Leu	Ile	Glu	His	Pro	Leu	Arg	Cys	Leu
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Val	Leu	Cys	Ala	Gln	Val	His	Ala	Gly	Met	Trp	Arg	Arg	Asn	Gly	Phe
			660					665					670		
Ser	Leu	Val	Asn	Gln	Ile	Tyr	Tyr	Tyr	His	Asn	Val	Lys	Cys	Arg	Arg
		675					680					685			
Glu	Met	Phe	Asp	Lys	Asp	Ile	Val	Met	Leu	Gln	Thr	Gly	Val	Ser	Met
	690					695					700				

Met	Asp	Pro	Asn	His	Phe	Leu	Met	Ile	Met	Leu	Ser	Arg	Phe	Glu	Leu
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Tyr	Gln	Leu	Phe	Ser	Thr	Pro	Asp	Tyr	Gly	Lys	Arg	Phe	Ser	Ser	Glu
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Val	Thr	His	Lys	Asp	Val	Val	Gln	Gln	Asn	Asn	Thr	Leu	Ile	Glu	Glu
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Met	Leu	Tyr	Leu	Ile	Ile	Met	Leu	Val	Gly	Glu	Arg	Phe	Asn	Pro	Gly
		755					760					765			
Val	Gly	Gln	Val	Ala	Ala	Thr	Asp	Glu	Ile	Lys	Arg	Glu	Ile	Ile	His
	770					775					780				
Gln	Leu	Ser	Ile	Lys	Pro	Met	Ala	His	Ser	Glu	Leu	Val	Lys	Ser	Leu
785					790					795					800
Pro	Glu	Asp	Glu	Asn	Lys	Glu	Thr	Gly	Met	Glu	Ser	Val	Ile	Glu	Ser
				805					810					815	
Val	Ala	His	Phe	Lys	Lys	Pro	Gly	Leu	Thr	Gly	Arg	Gly	Met	Tyr	Glu
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Leu	Lys	Pro	Glu	Cys	Ala	Lys	Glu	Phe	Asn	Leu	Tyr	Phe	Tyr	His	Phe
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Ser	Arg	Ala	Glu	Gln	Ser	Lys	Ala	Glu	Glu	Ala	Gln	Arg	Lys	Leu	Lys
	850					855					860				
Arg	Glu	Asn	Lys	Glu	Asp	Thr	Ala	Leu	Pro	Pro	Pro	Ala	Leu	Pro	Pro
865					870					875					880
Phe	Cys	Pro	Leu	Phe	Ala	Ser	Leu	Val	Asn	Ile	Leu	Gln	Cys	Asp	Val
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Gly	Ser	Ala	Trp	Ser	Glu	Ser	Met	Leu	Gln	Arg	Val	Leu	His	Leu	Ile
		915					920					925			
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945					950					955					960
Asp	Ala	Pro	His	Asn	Ser	Pro	Ser	Ile	Leu	Ala	Met	Leu	Glu	Thr	Leu
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Gln	Asn	Ala	Pro	Ser	Leu	Glu	Ala	His	Lys	Asp	Met	Ile	Arg	Trp	Leu
			980					985					990		
Leu	Lys	Met	Phe	Asn	Ala	Ile	Lys	Lys	Ile	Arg	Glu	Cys	Ser	Ser	Ser
		995					1000					1005			
Ser	Pro	Val	Ala	Glu	Ala	Glu	Gly	Thr	Ile	Met	Glu	Glu	Ser	Ser	Arg
	1010					1015					1020				
Asp	Lys	Asp	Lys	Ala	Glu	Arg	Lys	Arg	Lys	Ala	Glu	Ile	Ala	Arg	Leu
025				1030						1035					1040

Arg	Arg	Glu	Lys	Ile	Met	Ala	Gln	Met	Ser	Glu	Met	Gln	Arg	His	Phe	1045	1050	1055
Ile	Asp	Glu	Asn	Lys	Glu	Leu	Phe	Gln	Gln	Thr	Leu	Glu	Leu	Asp	Thr	1060	1065	1070
Ser	Ala	Ser	Ala	Thr	Leu	Asp	Ser	Ser	Pro	Pro	Val	Ser	Asp	Ala	Ala	1075	1080	1085
Leu	Thr	Ala	Leu	Gly	Pro	Ala	Gln	Thr	Gln	Val	Pro	Glu	Pro	Arg	Gln	1090	1095	1100
Phe	Val	Thr	Cys	Ile	Leu	Cys	Gln	Glu	Glu	Gln	Glu	Val	Thr	Val	Gly	1105	1110	1115
Ser	Arg	Ala	Met	Val	Leu	Ala	Ala	Phe	Val	Gln	Arg	Ser	Thr	Val	Leu	1125	1130	1135
Ser	Lys	Asp	Arg	Thr	Lys	Thr	Ile	Ala	Asp	Pro	Glu	Lys	Tyr	Asp	Pro	1140	1145	1150
Leu	Phe	Met	His	Pro	Asp	Leu	Ser	Cys	Gly	Thr	His	Thr	Gly	Ser	Cys	1155	1160	1165
Gly	His	Val	Met	His	Ala	His	Cys	Trp	Gln	Arg	Tyr	Phe	Asp	Ser	Val	1170	1175	1180
Gln	Ala	Lys	Glu	Gln	Arg	Arg	Gln	Gln	Arg	Leu	Arg	Leu	His	Thr	Ser	1185	1190	1195
Tyr	Asp	Val	Glu	Asn	Gly	Glu	Phe	Leu	Cys	Pro	Leu	Cys	Glu	Cys	Leu	1205	1210	1215
Ser	Asn	Thr	Val	Ile	Pro	Leu	Leu	Leu	Pro	Pro	Arg	Ser	Ile	Leu	Ser	1220	1225	1230
Arg	Arg	Leu	Asn	Phe	Ser	Asp	Gln	Pro	Asp	Leu	Ala	Gln	Trp	Thr	Arg	1235	1240	1245
Ala	Val	Thr	Gln	Gln	Ile	Lys	Val	Val	Gln	Met	Leu	Arg	Arg	Lys	His	1250	1255	1260
Asn	Ala	Ala	Asp	Thr	Ser	Ser	Ser	Glu	Asp	Thr	Glu	Ala	Met	Asn	Ile	1265	1270	1275
Ile	Pro	Ile	Pro	Glu	Gly	Phe	Arg	Pro	Asp	Phe	Tyr	Pro	Arg	Asn	Pro	1285	1290	1295
Tyr	Ser	Asp	Ser	Ile	Lys	Glu	Met	Leu	Thr	Thr	Phe	Gly	Thr	Ala	Ala	1300	1305	1310
Tyr	Lys	Val	Gly	Leu	Lys	Val	His	Pro	Asn	Glu	Gly	Asp	Pro	Arg	Val	1315	1320	1325
Pro	Ile	Leu	Cys	Trp	Gly	Thr	Cys	Ala	Tyr	Thr	Ile	Gln	Ser	Ile	Glu	1330	1335	1340
Arg	Ile	Leu	Ser	Asp	Glu	Glu	Lys	Pro	Val	Phe	Gly	Pro	Leu	Pro	Cys	1345	1350	1355
Arg	Leu	Asp	Asp	Cys	Leu	Arg	Ser	Leu	Thr	Arg	Phe	Ala	Ala	Ala	His	1365	1370	1375

Trp	Thr	Val	Ala	Leu	Leu	Pro	Val	Val	Gln	Gly	His	Phe	Cys	Lys	Leu	1380	1385	1390	
Phe	Ala	Ser	Leu	Val	Pro	Ser	Asp	Ser	Tyr	Glu	Asp	Leu	Pro	Cys	Ile	1395	1400	1405	
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Pro	Ala	Leu	Gln	Cys	Gln	Asp	Phe	Ser	Gly	Ser	Ser	Leu	Ala	Thr	Gly	425	1430	1435	1440
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Thr	Gly	Glu	Glu	Glu	Leu	Ala	Ile	Leu	Ser	Leu	His	Lys	Thr	Leu	His	1475	1480	1485	
Gln	Tyr	Thr	Gly	Ser	Ala	Leu	Lys	Glu	Ala	Pro	Ser	Gly	Trp	His	Leu	1490	1495	1500	
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Pro	Thr	Asn	Leu	Ile	His	Leu	Phe	Gln	Glu	Asn	Ser	Asp	Ile	Met	Asn	1555	1560	1565	
Ser	Leu	Ile	Glu	Ser	Trp	Cys	Gln	Asn	Ser	Glu	Val	Lys	Arg	Tyr	Leu	1570	1575	1580	
Asn	Gly	Glu	Arg	Gly	Ala	Ile	Ser	Tyr	Pro	Arg	Gly	Ala	Asn	Lys	Leu	585	1590	1595	1600
Ile	Asp	Leu	Pro	Glu	Asp	Tyr	Ser	Ser	Leu	Ile	Asn	Gln	Ala	Ser	Asn	1605	1610	1615	
Phe	Ser	Cys	Pro	Lys	Ser	Gly	Gly	Asp	Lys	Ser	Arg	Ala	Pro	Thr	Leu	1620	1625	1630	
Cys	Leu	Val	Cys	Gly	Ser	Leu	Leu	Cys	Ser	Gln	Ser	Tyr	Cys	Cys	Gln	1635	1640	1645	
Ala	Glu	Leu	Glu	Gly	Glu	Asp	Val	Gly	Ala	Cys	Thr	Ala	His	Thr	Tyr	1650	1655	1660	
Ser	Cys	Gly	Ser	Gly	Ala	Gly	Ile	Phe	Leu	Arg	Val	Arg	Glu	Cys	Gln	665	1670	1675	1680
Val	Leu	Phe	Leu	Ala	Gly	Lys	Thr	Lys	Gly	Cys	Phe	Tyr	Ser	Pro	Pro	1685	1690	1695	
Tyr	Leu	Asp	Asp	Tyr	Gly	Glu	Thr	Asp	Gln	Gly	Leu	Arg	Arg	Gly	Asn	1700	1705	1710	

Pro Leu His Leu Cys Gln Glu Arg Phe Arg Lys Ile Gln Lys Leu Trp  
1715 1720 1725

Gln Gln His Ser Ile Thr Glu Glu Ile Gly His Ala Gln Glu Ala Asn  
1730 1735 1740

Gln Thr Leu Val Gly Ile Asp Trp Gln His Leu  
745 1750 1755

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-2282-91

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<210> 8  
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2385-35

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<210> 9  
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<210> 10  
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<210> 11  
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<213> Artificial Sequence

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<223> Description of Artificial Sequence: Primer 2380-88

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18

<210> 12

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<212> DNA

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<223> Description of Artificial Sequence: Primer 2378-32

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23

<210> 13

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer 2381-48

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23

<210> 14

<211> 20

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Primer 2385-94

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<210> 15

<211> 1757

<212> PRT

<213> Mouse

<400> 15

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Glu Pro Pro Leu Ala Pro Gln Arg Pro Ala Ser Trp Trp Asp Gln Gln  
20 25 30

Val Asp Phe Tyr Thr Ala Phe Leu His His Leu Ala Gln Leu Val Pro  
35 40 45

Glu Ile Tyr Phe Ala Glu Met Asp Pro Asp Leu Glu Lys Gln Glu Glu  
50 55 60

Ser	Val	Gln	Met	Ser	Ile	Leu	Thr	Pro	Leu	Glu	Trp	Tyr	Leu	Phe	Gly	65	70	75	80
Glu	Asp	Pro	Asp	Ile	Cys	Leu	Glu	Lys	Leu	Lys	His	Ser	Gly	Ala	Phe	85	90	95	
Gln	Leu	Cys	Gly	Lys	Val	Phe	Lys	Ser	Gly	Glu	Thr	Thr	Tyr	Ser	Cys	100	105	110	
Arg	Asp	Cys	Ala	Ile	Asp	Pro	Thr	Cys	Val	Leu	Cys	Met	Asp	Cys	Phe	115	120	125	
Gln	Ser	Ser	Val	His	Lys	Asn	His	Arg	Tyr	Lys	Met	His	Thr	Ser	Thr	130	135	140	
Gly	Gly	Gly	Phe	Cys	Asp	Cys	Gly	Asp	Thr	Glu	Ala	Trp	Lys	Thr	Gly	145	150	155	160
Pro	Phe	Cys	Val	Asp	His	Glu	Pro	Gly	Arg	Ala	Gly	Thr	Thr	Lys	Glu	165	170	175	
Ser	Leu	His	Cys	Pro	Leu	Asn	Glu	Glu	Val	Ile	Ala	Gln	Ala	Arg	Arg	180	185	190	
Ile	Phe	Pro	Ser	Val	Ile	Lys	Tyr	Ile	Val	Glu	Met	Thr	Ile	Trp	Glu	195	200	205	
Glu	Glu	Lys	Glu	Leu	Pro	Pro	Glu	Leu	Gln	Ile	Arg	Glu	Lys	Asn	Glu	210	215	220	
Arg	Tyr	Tyr	Cys	Val	Leu	Phe	Asn	Asp	Glu	His	His	Ser	Tyr	Asp	His	225	230	235	240
Val	Ile	Tyr	Ser	Leu	Gln	Arg	Ala	Leu	Asp	Cys	Glu	Leu	Ala	Glu	Ala	245	250	255	
Gln	Leu	His	Thr	Thr	Ala	Ile	Asp	Lys	Glu	Gly	Arg	Arg	Ala	Val	Lys	260	265	270	
Ala	Gly	Val	Tyr	Ala	Thr	Cys	Gln	Glu	Ala	Lys	Glu	Asp	Ile	Lys	Ser	275	280	285	
His	Ser	Glu	Asn	Val	Ser	Gln	His	Pro	Leu	His	Val	Glu	Val	Leu	His	290	295	300	
Ser	Val	Val	Met	Ala	His	Gln	Lys	Phe	Ala	Leu	Arg	Leu	Gly	Ser	Trp	305	310	315	320
Met	Asn	Lys	Ile	Met	Ser	Tyr	Ser	Ser	Asp	Phe	Arg	Gln	Ile	Phe	Cys	325	330	335	
Gln	Ala	Cys	Leu	Val	Glu	Glu	Pro	Gly	Ser	Glu	Asn	Pro	Cys	Leu	Ile	340	345	350	
Ser	Arg	Leu	Met	Leu	Trp	Asp	Ala	Lys	Leu	Tyr	Lys	Gly	Ala	Arg	Lys	355	360	365	
Ile	Leu	His	Glu	Leu	Ile	Phe	Ser	Ser	Phe	Phe	Met	Glu	Met	Glu	Tyr	370	375	380	
Lys	Lys	Leu	Phe	Ala	Met	Glu	Phe	Val	Lys	Tyr	Tyr	Lys	Gln	Leu	Gln	385	390	395	400

Lys	Glu	Tyr	Ile	Ser 405	Asp	Asp	His	Glu	Arg 410	Ser	Ile	Ser	Ile	Thr	Ala 415
Leu	Ser	Val	Gln 420	Met	Leu	Thr	Val	Pro 425	Thr	Leu	Ala	Arg	His 430	Leu	Ile
Glu	Glu	Gln 435	Asn	Val	Ile	Ser	Val 440	Ile	Thr	Glu	Thr	Leu 445	Leu	Glu	Val
Leu	Pro 450	Glu	Tyr	Leu	Asp	Arg 455	Asn	Asn	Lys	Phe	Asn 460	Phe	Gln	Gly	Tyr
Ser 465	Gln	Asp	Lys	Leu	Gly 470	Arg	Val	Tyr	Ala	Val 475	Ile	Cys	Asp	Leu	Lys 480
Tyr	Ile	Leu	Ile	Ser 485	Lys	Pro	Val	Ile	Trp 490	Thr	Glu	Arg	Leu	Arg 495	Ala
Gln	Phe	Leu	Glu 500	Gly	Phe	Arg	Ser	Phe 505	Leu	Lys	Ile	Leu	Thr 510	Cys	Met
Gln	Gly	Met 515	Glu	Glu	Ile	Arg	Arg 520	Gln	Val	Gly	Gln	His 525	Ile	Glu	Val
Asp	Pro 530	Asp	Trp	Glu	Ala	Ala 535	Ile	Ala	Ile	Gln	Met 540	Gln	Leu	Lys	Asn
Ile 545	Leu	Leu	Met	Phe	Gln 550	Glu	Trp	Cys	Ala	Cys 555	Asp	Glu	Asp	Leu	Leu 560
Leu	Val	Ala	Tyr	Lys 565	Glu	Cys	His	Lys	Ala 570	Val	Met	Arg	Cys	Ser 575	Thr
Asn	Phe	Met	Ser 580	Ser	Thr	Lys	Thr	Val 585	Val	Gln	Leu	Cys	Gly 590	His	Ser
Leu	Glu	Thr 595	Lys	Ser	Tyr	Lys	Val 600	Ser	Glu	Asp	Leu	Val 605	Ser	Ile	His
Leu	Pro 610	Leu	Ser	Arg	Thr	Leu 615	Ala	Gly	Leu	His	Val 620	Arg	Leu	Ser	Arg
Leu 625	Gly	Ala	Ile	Ser	Arg 630	Leu	His	Glu	Phe	Val 635	Pro	Phe	Asp	Ser	Phe 640
Gln	Val	Glu	Val	Leu 645	Val	Glu	Tyr	Pro	Leu 650	Arg	Cys	Leu	Val	Leu 655	Val
Ala	Gln	Val	Val 660	Ala	Glu	Met	Trp	Arg 665	Arg	Asn	Gly	Leu	Ser 670	Leu	Ile
Ser	Gln	Val 675	Phe	Tyr	Tyr	Gln	Asp 680	Val	Lys	Cys	Arg	Glu 685	Glu	Met	Tyr
Asp	Lys 690	Asp	Ile	Ile	Met	Leu 695	Gln	Ile	Gly	Ala	Ser 700	Ile	Met	Asp	Pro
Asn 705	Lys	Phe	Leu	Leu	Leu 710	Val	Leu	Gln	Arg	Tyr 715	Glu	Leu	Thr	Asp	Ala 720
Phe	Asn	Lys	Thr	Ile 725	Ser	Thr	Lys	Asp	Gln 730	Asp	Leu	Ile	Lys	Gln 735	Tyr

Asn	Thr	Leu	Ile	Glu	Glu	Met	Leu	Gln	Val	Leu	Ile	Tyr	Ile	Val	Gly
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Glu	Arg	Tyr	Val	Pro	Gly	Val	Gly	Asn	Val	Thr	Arg	Glu	Glu	Val	Ile
		755					760					765			
Met	Arg	Glu	Ile	Thr	His	Leu	Leu	Cys	Ile	Glu	Pro	Met	Pro	His	Ser
	770					775					780				
Ala	Ile	Ala	Arg	Asn	Leu	Pro	Glu	Asn	Glu	Asn	Asn	Glu	Thr	Gly	Leu
785					790					795					800
Glu	Asn	Val	Ile	Asn	Lys	Val	Ala	Thr	Phe	Lys	Lys	Pro	Gly	Val	Ser
				805					810					815	
Gly	His	Gly	Val	Tyr	Glu	Leu	Lys	Asp	Glu	Ser	Leu	Lys	Asp	Phe	Asn
			820					825					830		
Met	Tyr	Phe	Tyr	His	Tyr	Ser	Lys	Thr	Gln	His	Ser	Lys	Ala	Glu	His
		835					840					845			
Met	Gln	Lys	Lys	Arg	Arg	Lys	Gln	Glu	Asn	Lys	Asp	Glu	Ala	Leu	Pro
	850					855					860				
Pro	Pro	Pro	Pro	Pro	Glu	Phe	Cys	Pro	Ala	Phe	Ser	Lys	Val	Val	Asn
865					870					875					880
Leu	Leu	Ser	Cys	Asp	Val	Met	Ile	Tyr	Ile	Leu	Arg	Thr	Ile	Phe	Glu
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Arg	Ala	Val	Asp	Thr	Glu	Ser	Asn	Leu	Trp	Thr	Glu	Gly	Met	Leu	Gln
			900					905					910		
Met	Ala	Phe	His	Ile	Leu	Ala	Leu	Gly	Leu	Leu	Glu	Glu	Lys	Gln	Gln
		915					920					925			
Leu	Gln	Lys	Ala	Pro	Glu	Glu	Glu	Val	Ala	Phe	Asp	Phe	Tyr	His	Lys
	930					935					940				
Ala	Ser	Arg	Leu	Gly	Ser	Ser	Ala	Met	Asn	Ala	Gln	Asn	Ile	Gln	Met
945					950					955					960
Leu	Leu	Glu	Arg	Leu	Lys	Gly	Ile	Pro	Gln	Leu	Glu	Gly	Gln	Lys	Asp
				965					970					975	
Met	Ile	Thr	Trp	Ile	Leu	Gln	Met	Phe	Asp	Thr	Val	Lys	Arg	Leu	Arg
			980					985					990		
Glu	Lys	Ser	Cys	Leu	Val	Val	Ala	Thr	Thr	Ser	Gly	Leu	Glu	Cys	Ile
		995					1000					1005			
Lys	Ser	Glu	Glu	Ile	Thr	His	Asp	Lys	Glu	Lys	Ala	Glu	Arg	Lys	Arg
	1010					1015					1020				
Lys	Ala	Glu	Ala	Ala	Arg	Leu	His	Arg	Gln	Lys	Ile	Met	Ala	Gln	Met
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Ser	Ala	Leu	Gln	Lys	Asn	Phe	Ile	Glu	Thr	His	Lys	Leu	Met	Tyr	Asp
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Asn	Thr	Ser	Glu	Val	Thr	Gly	Lys	Glu	Asp	Ser	Ile	Met	Glu	Glu	Glu
			1060					1065					1070		

Ser Thr Ser Ala Val Ser Glu Ala Ser Arg Ile Ala Leu Gly Pro Lys  
1075 1080 1085

Arg Gly Pro Ala Val Thr Glu Lys Glu Val Leu Thr Cys Ile Leu Cys  
1090 1095 1100

Gln Glu Glu Gln Glu Val Lys Leu Glu Asn Asn Ala Met Val Leu Ser  
1105 1110 1115 1120

Ala Cys Val Gln Lys Ser Thr Ala Leu Thr Gln His Arg Gly Lys Pro  
1125 1130 1135

Val Asp His Leu Gly Glu Thr Leu Asp Pro Leu Phe Met Asp Pro Asp  
1140 1145 1150

Leu Ala His Gly Thr Tyr Thr Gly Ser Cys Gly His Val Met His Ala  
1155 1160 1165

Val Cys Trp Gln Lys Tyr Phe Glu Ala Val Gln Leu Ser Ser Gln Gln  
1170 1175 1180

Arg Ile His Val Asp Leu Phe Asp Leu Glu Ser Gly Glu Tyr Leu Cys  
1185 1190 1195 1200

Pro Leu Cys Lys Ser Leu Cys Asn Thr Val Ile Pro Ile Ile Pro Leu  
1205 1210 1215

Gln Pro Gln Lys Ile Asn Ser Glu Asn Ala Glu Ala Leu Ala Gln Leu  
1220 1225 1230

Leu Thr Leu Ala Arg Trp Ile Gln Thr Val Leu Ala Arg Ile Ser Gly  
1235 1240 1245

Tyr Asn Ile Lys His Ala Lys Gly Glu Ala Pro Ala Val Pro Val Leu  
1250 1255 1260

Phe Asn Gln Gly Met Gly Asp Ser Thr Phe Glu Phe His Ser Ile Leu  
1265 1270 1275 1280

Ser Phe Gly Val Gln Ser Ser Val Lys Tyr Ser Asn Ser Ile Lys Glu  
1285 1290 1295

Met Val Ile Leu Phe Ala Thr Thr Ile Tyr Arg Ile Gly Leu Lys Val  
1300 1305 1310

Pro Pro Asp Glu Leu Asp Pro Arg Val Pro Met Met Thr Trp Ser Thr  
1315 1320 1325

Cys Ala Phe Thr Ile Gln Ala Ile Glu Asn Leu Leu Gly Asp Glu Gly  
1330 1335 1340

Lys Pro Leu Phe Gly Ala Leu Gln Asn Arg Gln His Ser Gly Leu Lys  
1345 1350 1355 1360

Ala Leu Met Gln Phe Ala Val Ala Gln Arg Ala Thr Cys Pro Gln Val  
1365 1370 1375

Leu Ile His Lys His Leu Ala Arg Leu Leu Ser Val Ile Leu Pro Asn  
1380 1385 1390

Leu Gln Ser Glu Asn Thr Pro Gly Leu Leu Ser Val Asp Leu Phe His  
1395 1400 1405

Val	Leu	Val	Gly	Ala	Val	Leu	Ala	Phe	Pro	Ser	Leu	Tyr	Trp	Asp	Asp	
1410																
Thr	Val	Asp	Leu	Gln	Pro	Ser	Pro	Leu	Ser	Ser	Ser	Tyr	Asn	His	Leu	
1425					1430					1435					1440	
Tyr	Leu	Phe	His	Leu	Ile	Thr	Met	Ala	His	Met	Leu	Gln	Ile	Leu	Leu	
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Thr	Thr	Asp	Thr	Asp	Leu	Ser	Pro	Gly	Pro	Pro	Leu	Ala	Glu	Gly	Glu	
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Glu	Asp	Ser	Glu	Glu	Ala	Arg	Cys	Ala	Ser	Ala	Phe	Phe	Val	Glu	Val	
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Ser	Gln	His	Thr	Asp	Gly	Leu	Thr	Gly	Cys	Gly	Ala	Pro	Gly	Trp	Tyr	
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Phe	Ala	Asn	Ser	Ala	Glu	Gly	Glu	Phe	Ser	Ala	Leu	Cys	Ser	Tyr	Leu	
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Ala	Leu	His	Cys	Gly	Ala	Gly	Val	Cys	Ile	Phe	Leu	Lys	Ile	Arg	Glu	
1665					1670					1675					1680	
Cys	Arg	Val	Val	Leu	Val	Glu	Gly	Lys	Ala	Arg	Gly	Cys	Ala	Tyr	Pro	
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Ala	Pro	Tyr	Leu	Asp	Glu	Tyr	Gly	Glu	Thr	Asp	Pro	Gly	Leu	Lys	Arg	
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Gly	Asn	Pro	Leu	His	Leu	Ser	Arg	Glu	Arg	Tyr	Arg	Lys	Leu	His	Leu	
	1715						1720					1725				
Val	Trp	Gln	Gln	His	Cys	Ile	Ile	Glu	Glu	Ile	Ala	Arg	Ser	Gln	Glu	
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catcatttgg cacaattggt gccagaaatt tactttgctg aaatggaccc agacttggaa 180
aagcaggagg aaagtgtaca aatgtcaata ttcactccac tggaatggta cttattttgga 240
gaagatccag atatttgctt agagaaattg aagcacagtg gagcatttca gctttgtggg 300
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gccagttgc ataccactgc cattgacaaa gagggtcgtc gggctgttaa agcgggagct 780
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35 40 45  
Ala Gln Leu Val Pro Glu Ile Tyr Phe Ala Glu Met Asp Pro Asp Leu  
50 55 60  
Glu Lys Gln Glu Glu Ser Val Gln Met Ser Ile Phe Thr Pro Leu Glu  
65 70 75 80  
Trp Tyr Leu Phe Gly Glu Asp Pro Asp Ile Cys Leu Glu Lys Leu Lys  
85 90 95  
His Ser Gly Ala Phe Gln Leu Cys Gly Arg Val Phe Lys Ser Gly Glu  
100 105 110  
Thr Thr Tyr Ser Cys Arg Asp Cys Ala Ile Asp Pro Thr Cys Val Leu  
115 120 125  
Cys Met Asp Cys Phe Gln Asp Ser Val His Lys Asn His Arg Tyr Lys  
130 135 140  
Met His Thr Ser Thr Gly Gly Phe Cys Asp Cys Gly Asp Thr Glu  
145 150 155 160  
Ala Trp Lys Thr Gly Pro Phe Cys Val Asn His Glu Pro Gly Arg Ala  
165 170 175  
Gly Thr Ile Lys Glu Asn Ser Arg Cys Pro Leu Asn Glu Glu Val Ile  
180 185 190  
Val Gln Ala Arg Lys Ile Phe Pro Ser Val Ile Lys Tyr Val Val Glu  
195 200 205

Met	Thr	Ile	Trp	Glu	Glu	Glu	Lys	Glu	Leu	Pro	Pro	Glu	Leu	Gln	Ile
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Arg	Glu	Lys	Asn	Glu	Arg	Tyr	Tyr	Cys	Val	Leu	Phe	Asn	Asp	Glu	His
225					230					235					240
His	Ser	Tyr	Asp	His	Val	Ile	Tyr	Ser	Leu	Gln	Arg	Ala	Leu	Asp	Cys
				245					250					255	
Glu	Leu	Ala	Glu	Ala	Gln	Leu	His	Thr	Thr	Ala	Ile	Asp	Lys	Glu	Gly
			260					265					270		
Arg	Arg	Ala	Val	Lys	Ala	Gly	Ala	Tyr	Ala	Ala	Cys	Gln	Glu	Ala	Lys
		275					280					285			
Glu	Asp	Ile	Lys	Ser	His	Ser	Glu	Asn	Val	Ser	Gln	His	Pro	Leu	His
	290					295					300				
Val	Glu	Val	Leu	His	Ser	Glu	Ile	Met	Ala	His	Gln	Lys	Phe	Ala	Leu
305					310					315					320
Arg	Leu	Gly	Ser	Trp	Met	Asn	Lys	Ile	Met	Ser	Tyr	Ser	Ser	Asp	Phe
				325					330					335	
Arg	Gln	Ile	Phe	Cys	Gln	Ala	Cys	Leu	Arg	Glu	Glu	Pro	Asp	Ser	Glu
			340					345					350		
Asn	Pro	Cys	Leu	Ile	Ser	Arg	Leu	Met	Leu	Trp	Asp	Ala	Lys	Leu	Tyr
		355					360					365			
Lys	Gly	Ala	Arg	Lys	Ile	Leu	His	Glu	Leu	Ile	Phe	Ser	Ser	Phe	Phe
	370					375					380				
Met	Glu	Met	Glu	Tyr	Lys	Lys	Leu	Phe	Ala	Met	Glu	Phe	Val	Lys	Tyr
385					390					395					400
Tyr	Lys	Gln	Leu	Gln	Lys	Glu	Tyr	Ile	Ser	Asp	Asp	His	Asp	Arg	Ser
				405					410					415	
Ile	Ser	Ile	Thr	Ala	Leu	Ser	Val	Gln	Met	Phe	Thr	Val	Pro	Thr	Leu
			420					425					430		
Ala	Arg	His	Leu	Ile	Glu	Glu	Gln	Asn	Val	Ile	Ser	Val	Ile	Thr	Glu
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Thr	Leu	Leu	Glu	Val	Leu	Pro	Glu	Tyr	Leu	Asp	Arg	Asn	Asn	Lys	Phe
	450					455					460				
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465					470					475					480
Ile	Cys	Asp	Leu	Lys	Tyr	Ile	Leu	Ile	Ser	Lys	Pro	Thr	Ile	Trp	Thr
				485					490					495	
Glu	Arg	Leu	Arg	Met	Gln	Phe	Leu	Glu	Gly	Phe	Arg	Ser	Phe	Leu	Lys
				500				505					510		
Ile	Leu	Thr	Cys	Met	Gln	Gly	Met	Glu	Glu	Ile	Arg	Arg	Gln	Val	Gly
		515					520					525			
Gln	His	Ile	Glu	Val	Asp	Pro	Asp	Trp	Glu	Ala	Ala	Ile	Ala	Ile	Gln
	530					535					540				

Met	Gln	Leu	Lys	Asn	Ile	Leu	Leu	Met	Phe	Gln	Glu	Trp	Cys	Ala	Cys	
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Asp	Glu	Glu	Leu	Leu	Leu	Val	Ala	Tyr	Lys	Glu	Cys	His	Lys	Ala	Val	
			565						570					575		
Met	Arg	Cys	Ser	Thr	Ser	Phe	Ile	Ser	Ser	Ser	Lys	Thr	Val	Val	Gln	
			580					585					590			
Ser	Cys	Gly	His	Ser	Leu	Glu	Thr	Lys	Ser	Tyr	Arg	Val	Ser	Glu	Asp	
		595					600					605				
Leu	Val	Ser	Ile	His	Leu	Pro	Leu	Ser	Arg	Thr	Leu	Ala	Gly	Leu	His	
	610					615					620					
Val	Arg	Leu	Ser	Arg	Leu	Gly	Ala	Val	Ser	Arg	Leu	His	Glu	Phe	Val	
625					630					635					640	
Ser	Phe	Glu	Asp	Phe	Gln	Val	Glu	Val	Leu	Val	Glu	Tyr	Pro	Leu	Arg	
				645					650					655		
Cys	Leu	Val	Leu	Val	Ala	Gln	Val	Val	Ala	Glu	Met	Trp	Arg	Arg	Asn	
			660					665					670			
Gly	Leu	Ser	Leu	Ile	Ser	Gln	Val	Phe	Tyr	Tyr	Gln	Asp	Val	Lys	Cys	
		675					680					685				
Arg	Glu	Glu	Met	Tyr	Asp	Lys	Asp	Ile	Ile	Met	Leu	Gln	Ile	Gly	Ala	
	690					695					700					
Ser	Leu	Met	Asp	Pro	Asn	Lys	Phe	Leu	Leu	Leu	Val	Leu	Gln	Arg	Tyr	
705					710					715					720	
Glu	Leu	Ala	Glu	Ala	Phe	Asn	Lys	Thr	Ile	Ser	Thr	Lys	Asp	Gln	Asp	
				725					730					735		
Leu	Ile	Lys	Gln	Tyr	Asn	Thr	Leu	Ile	Glu	Glu	Met	Leu	Gln	Val	Leu	
			740					745					750			
Ile	Tyr	Ile	Val	Gly	Glu	Arg	Tyr	Val	Pro	Gly	Val	Gly	Asn	Val	Thr	
	755						760					765				
Lys	Glu	Glu	Val	Thr	Met	Arg	Glu	Ile	Ile	His	Leu	Leu	Cys	Ile	Glu	
	770					775					780					
Pro	Met	Pro	His	Ser	Ala	Ile	Ala	Lys	Asn	Leu	Pro	Glu	Asn	Glu	Asn	
785					790					795					800	
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				805					810					815		
Lys	Pro	Gly	Val	Ser	Gly	His	Gly	Val	Tyr	Glu	Leu	Lys	Asp	Glu	Ser	
			820					825					830			
Leu	Lys	Asp	Phe	Asn	Met	Tyr	Phe	Tyr	His	Tyr	Ser	Lys	Thr	Gln	His	
		835					840					845				
Ser	Lys	Ala	Glu	His	Met	Gln	Lys	Lys	Arg	Arg	Lys	Gln	Glu	Asn	Lys	
	850					855					860					
Asp	Glu	Ala	Leu	Pro	Pro	Pro	Pro	Pro	Pro	Glu	Phe	Cys	Pro	Ala	Phe	
865					870					875					880	

Ser Lys Val Ile Asn Leu Leu Asn Cys Asp Ile Met Met Tyr Ile Leu  
885 890 895

Arg Thr Val Phe Glu Arg Ala Ile Asp Thr Asp Ser Asn Leu Trp Thr  
900 905 910

Glu Gly Met Leu Gln Met Ala Phe His Ile Leu Ala Leu Gly Leu Leu  
915 920 925

Glu Glu Lys Gln Gln Leu Gln Lys Ala Pro Glu Glu Glu Val Thr Phe  
930 935 940

Asp Phe Tyr His Lys Ala Ser Arg Leu Gly Ser Ser Ala Met Asn Ile  
945 950 955 960

Gln Met Leu Leu Glu Lys Leu Lys Gly Ile Pro Gln Leu Glu Gly Gln  
965 970 975

Lys Asp Met Ile Thr Trp Ile Leu Gln Met Phe Asp Thr Val Lys Arg  
980 985 990

Leu Arg Glu Lys Ser Cys Leu Ile Val Ala Thr Thr Ser Gly Ser Glu  
995 1000 1005

Ser Ile Lys Asn Asp Glu Ile Thr His Asp Lys Glu Lys Ala Glu Arg  
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Lys Arg Lys Ala Glu Ala Ala Arg Leu His Arg Gln Lys Ile Met Ala  
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Gln Met Ser Ala Leu Gln Lys Asn Phe Ile Glu Thr His Lys Leu Met  
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Tyr Asp Asn Thr Ser Glu Met Pro Gly Lys Glu Asp Ser Ile Met Glu  
1060 1065 1070

Glu Glu Ser Thr Pro Ala Val Ser Asp Tyr Ser Arg Ile Ala Leu Gly  
1075 1080 1085

Pro Lys Arg Gly Pro Ser Val Thr Glu Lys Glu Val Leu Thr Cys Ile  
1090 1095 1100

Leu Cys Gln Glu Glu Gln Glu Val Lys Ile Glu Asn Asn Ala Met Val  
1105 1110 1115 1120

Leu Ser Ala Cys Val Gln Lys Ser Thr Ala Leu Thr Gln His Arg Gly  
1125 1130 1135

Lys Pro Ile Glu Leu Ser Gly Glu Ala Leu Asp Pro Leu Phe Met Asp  
1140 1145 1150

Pro Asp Leu Ala Tyr Gly Thr Tyr Thr Gly Ser Cys Gly His Val Met  
1155 1160 1165

His Ala Val Cys Trp Gln Lys Tyr Phe Glu Ala Val Gln Leu Ser Ser  
1170 1175 1180

Gln Gln Arg Ile His Val Asp Leu Phe Asp Leu Glu Ser Gly Glu Tyr  
1185 1190 1195 1200

Leu Cys Pro Leu Cys Lys Ser Leu Cys Asn Thr Val Ile Pro Ile Ile  
1205 1210 1215

Pro Leu Gln Pro Gln Lys Ile Asn Ser Glu Asn Ala Asp Ala Leu Ala  
1220 1225 1230

Gln Leu Leu Thr Leu Ala Arg Trp Ile Gln Thr Val Leu Ala Arg Ile  
1235 1240 1245

Ser Gly Tyr Asn Ile Arg His Ala Lys Gly Glu Asn Pro Ile Pro Ile  
1250 1255 1260

Phe Phe Asn Gln Gly Met Gly Asp Ser Thr Leu Glu Phe His Ser Ile  
1265 1270 1275 1280

Leu Ser Phe Gly Val Glu Ser Ser Ile Lys Tyr Ser Asn Ser Ile Lys  
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Glu Met Val Ile Leu Phe Ala Thr Thr Ile Tyr Arg Ile Gly Leu Lys  
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Val Pro Pro Asp Glu Arg Asp Pro Arg Val Pro Met Leu Thr Trp Ser  
1315 1320 1325

Thr Cys Ala Phe Thr Ile Gln Ala Ile Glu Asn Leu Leu Gly Asp Glu  
1330 1335 1340

Gly Lys Pro Leu Phe Gly Ala Leu Gln Asn Arg Gln His Asn Gly Leu  
1345 1350 1355 1360

Lys Ala Leu Met Gln Phe Ala Val Ala Gln Arg Ile Thr Cys Pro Gln  
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Val Leu Ile Gln Lys His Leu Val Arg Leu Leu Ser Val Val Leu Pro  
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Asn Ile Lys Ser Glu Asp Thr Pro Cys Leu Leu Ser Ile Asp Leu Phe  
1395 1400 1405

His Val Leu Val Gly Ala Val Leu Ala Phe Pro Ser Leu Tyr Trp Asp  
1410 1415 1420

Asp Pro Val Asp Leu Gln Pro Ser Ser Val Ser Ser Ser Tyr Asn His  
1425 1430 1435 1440

Leu Tyr Leu Phe His Leu Ile Thr Met Ala His Met Leu Gln Ile Leu  
1445 1450 1455

Leu Thr Val Asp Thr Gly Leu Pro Leu Ala Gln Val Gln Glu Asp Ser  
1460 1465 1470

Glu Glu Ala His Ser Ala Ser Ser Phe Phe Ala Glu Ile Ser Gln Tyr  
1475 1480 1485

Thr Ser Gly Ser Ile Gly Cys Asp Ile Pro Gly Trp Tyr Leu Trp Val  
1490 1495 1500

Ser Leu Lys Asn Gly Ile Thr Pro Tyr Leu Arg Cys Ala Ala Leu Phe  
1505 1510 1515 1520

Phe His Tyr Leu Leu Gly Val Thr Pro Pro Glu Glu Leu His Thr Asn  
1525 1530 1535

Ser Ala Glu Gly Glu Tyr Ser Ala Leu Cys Ser Tyr Leu Ser Leu Pro  
1540 1545 1550

Thr Asn Leu Phe Leu Leu Phe Gln Glu Tyr Trp Asp Thr Val Arg Pro  
 1555 1560 1565

Leu Leu Gln Arg Arg Cys Ala Asp Pro Ala Leu Leu Asn Cys Leu Lys  
 1570 1575 1580

Gln Lys Asn Thr Val Val Arg Tyr Pro Arg Lys Arg Asn Ser Leu Ile  
 1585 1590 1595 1600

Glu Leu Pro Asp Asp Tyr Ser Cys Leu Leu Asn Gln Ala Ser His Phe  
 1605 1610 1615

Arg Cys Pro Arg Ser Ala Asp Asp Glu Arg Lys His Pro Val Leu Cys  
 1620 1625 1630

Leu Phe Cys Gly Ala Ile Leu Cys Ser Gln Asn Ile Cys Cys Gln Glu  
 1635 1640 1645

Ile Val Asn Gly Glu Glu Val Gly Ala Cys Ile Phe His Ala Leu His  
 1650 1655 1660

Cys Lys Ala Arg Gly Cys Ala Tyr Pro Ala Pro Tyr Leu Asp Glu Tyr  
 1665 1670 1675 1680

Gly Glu Thr Asp Pro Gly Leu Lys Arg Gly Asn Pro Leu His Leu Ser  
 1685 1690 1695

Arg Glu Arg Tyr Arg Lys Leu His Leu Val Trp Gln Gln His Cys Ile  
 1700 1705 1710

Ile Glu Glu Ile Ala Arg Ser Gln Glu Thr Asn Gln Met Leu Phe Gly  
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Phe Asn Trp Gln Leu Leu \*  
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 agaaggagag tacagtgcac tc

22

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20

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<212> DNA  
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<220>  
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<210> 25  
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<210> 27  
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25

23

21

[illegible]